24 September 1965

Please Reference:
A51-65-3339

U. S. Government

Subject: Refurbishment of the HTA-5

Gentlemen:

We have completed a preliminary survey of the HTA-5 and Ivan's comments, based on his cursory examination of the machine are attached for your information.

As you will deduce, the refurbishment required represents a considerable effort not only from a work standpoint, but also from the amount of estimating that is required. In order to be sure that we are on the right track, please review Ivan's comments and advise if you are in agreement. Also, we would appreciate a copy of the original performance evaluation report in order to make sure that we covered all areas.

As discussed previously, we haven't included the ABD4 dryer in this effort because we intend to use it "as is" during the present program.

Please don't hesitate to call if you require further information.

Very truly yours,

STATOTHR

[redacted]

Contract Administrator

MCM:ml
Enclosure

Notes on which proposal for HTA/5 Film Processor refurbishing program will be based.

1. A report was prepared by March AFB on the performance of the HTA/5. With no copy of this report available, it is impossible to be certain that all objections have been satisfied. The following items however, are believed to be the areas in which improvements in performance could be made.

   a) Tracking of film

   b) Operation of the air knife

   c) Take-up mechanism

   d) Splicer

   e) F.P.M. indicator

   f) Reliability of pumps, leakage in plumbing system

   g) Film magazines

   h) Liquid bearings

2. Present Condition of the HTA/5.

   The HTA/5 is dismantled, and has been stored in an open environment. A large number of fittings, items of equipment etc. show signs of corrosion and oxidization. Many removable items such as air and liquid bearings, vacuum pumps etc. have been stowed in boxes. The entire machine complex will require a thorough cleaning, prior to a detailed inspection. Other than by a detailed inventory, there is no way of determining if all parts are present. A preliminary check indicates that such equipment as two vacuum pumps, the air knife, one vacuum capstan, and all the electrical and plumbing inter-connecting assemblies may be missing. The two solution mixers, ductwork between the main air blower and processor, and dry box and blower may also be missing.

3. Modification and Refurbishing of the HTA/5.

   The minimum changes necessary to ensure efficient operation of the processor as a production unit are proposed below.

   a) Tracking of Film

Three modifications are proposed to improve the tracking of the film.

a) Suspension of the accumulator carriage by twin supports, in lieu of the single cable.

b) Replacement of the metering capstan by a large diameter capstan.

c) Replacement of the swing-over take-up mechanism by two single fixed shafts.

2. Operation of Air Knife.

a) To remove water spots more efficiently the air knife will be modified.

b) To eliminate the spray caused by the air released from the bottom of the air knife, a method of removal will be installed.

3. Film Splicing.

a) The staple splicer will be replaced by a standard manual tape splicer.

b) Modifications to the load end to provide a mounting for the splicer will be required.

c) Install a roller system to change the film path as necessary.

4. FPM Indicator

a) Install a F.P.M. film speed indicator.

b) Provide a suitable mechanism at the metering drive capstan.

5. Service Units.

a) The bearing pumps will be removed, and remounted on the rear of the processor, to eliminate leaks, valve switching and, most importantly, loss of pressure.

b) The temperature control system will be checked to determine if filtration of wash water and temperature control could be eliminated on the basis of this being available from laboratory sources. The object is to simplify the service units.

6. Liquid Bearings.

a) Fit sleeves to all liquid bearings, to improve performance.

7. Film Magazines.

a) Replacement of the 30,000 ft. magazines by standard types.

b) Provide mountings and/or alignment plates as required.

8. Refurbishing of the HTA/5.

a) Check all pumps for seal, motor and impeller integrity.

b) Check all electrical relays and switches for safe operation.

c) Run-up all motors and check voltage and amperage. Check for temperature rise.

d) Conduct point-to-point continuity check of all electric circuits.

e) Replace all damaged, removed and cut wiring.

f) Clean and flush all tanks, valves, tee pieces, elbows etc.

g) Clean out all service unit fittings such as valves, filter bodies, tanks etc.

h) Manufacture missing or damaged items, such as brackets, ducts, etc.

i) Fabricate new connecting pipe assemblies.

j) Conduct modification program.

k) Determine schedule of films to be processed.

l) Assemble machine, fill with water and conduct performance test.

m) Run exposed film tests, plot H & D curves, edge-to-edge density variations and etc.